J. ent. Soc. sth. Afr. 1974
Vol. 37, No. 2, pp. 369–386

New and little known genera and species of Encyrtidae (Hymenoptera: Chalcidoidea), mainly from the Ethiopian region

by

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Bregmencyrtus gen. nov. is described for the Madagascan *Eucomys durantae* Risbec, 1958 and *Lombitsikala coccidivora* Risbec, 1957, also from Madagascar, is redescribed and compared with *Discodes* Foerster and *Trichomasthus* Thomson. *Xenocomys* Blanchard, 1940 is synonymized with *Neococcidencyrtus* Compere, 1928 and *Microterys pudaspidis* Annecke is transferred to the latter genus as a new combination. A key is given to the described species of *Neococcidencyrtus*. *Monstranusia mirabilissima* Trjapitzin is recorded from South Africa, and four new southern African species of *Metaphaenodiscus* Mercet are described, namely, *capensis*, *watshami*, *karoo* and *aethiops*. Notes are given on *M. nemoralis* Mercet, the type-species, and a key is provided for distinguishing the described species of the genus. *Gyranusa rubella* spec. nov. is described from South Africa: it is the first record of the genus from the Ethiopian region.

In this paper results are presented of re-examination of the type-species of two Madagascan genera described by Jean Risbec: for one a new genus near *Prionomitus* Mayr is described, and the other is found to be related to *Discodes* Foerster and *Trichomasthus* Thomson. Two species incorrectly assigned to other genera are transferred to *Neococcidencyrtus* Compere bringing the total number of species described in this genus to four, for which a key is provided. Finally, three interesting tetracnemine genera are shown to be represented in southern Africa: *Monstranusia* Trjapitzin by the type-species hitherto known only from U.S.S.R. and northern Afghanistan; *Metaphaenodiscus* by four newly described species; and *Gyranusa* Mercet by a new mealybug-inhabiting species from South Africa. Types of the new species are in the National Collection of Insects, Plant Protection Research Institute, Pretoria.

BREGMENCYRTUS gen. nov.

Type-species *Eucomys durantae* Risbec, 1958

In 1958 Risbec published the description of a new encyrtid under the name *Eucomys durantae*. The type specimens were said to have been parasites of the eggs of a spider on the foliage of "*Duranta plumieri*" at Tsimbazaza, Madagascar. In their catalogue, Annecke & Insley (1971) listed the species as *Encyrtus durantae* for *Eucomys* Foerster is a long established synonym (for example, Timberlake 1923) of *Encyrtus* Latreille. Having now remounted and studied the type-series in detail, it is possible to confirm

Annecke & Insley's (1971) note that *durantae* is out of place in *Encyrtus*. In Trjapitzin's (1971a) key to the palaearctic genera of Encyrtidae, *durantae* runs readily to *Prionomitus* Mayr in both sexes. However it differs from the type-species of that genus — *P. mitratus* (Dalman) — in several important respects, notably, the shape of the head in both sexes, the minute mandibles, and the two-segmented club of the male antenna. Material of *P. mitratus*, determined by V. A. Trjapitzin, is at hand.

FEMALE. Head in dorsal aspect (occiput perpendicular) with anterior margin subsemicirular, bulging a little narrowly at anterior limit of frontovertex, about 2,3 times as wide as long in this view; fronto-occipital margin sinuate: distinctly concave medially and curving forward laterocaudad to each eye, these angles rounded not abrupt; in this view, frontovertex about twice as long as smallest width, sloping strongly forward, almost perpendicular at anterior limit, narrowest at median ocellus where it is about one-fourth head width, broadening gradually anteriorly and posteriorly; occipital margin of frontovertex acute; ocelli in approximately a 50° triangle, the lateral pair close to orbits, almost two diameters from fronto-occipital margin; anterior margin of frontovertex raised to form a prominent, curved, transverse ridge, not quite as wide as frontovertex, overhanging upper limits of scrobes; face with scrobes deeply impressed (fig. 3), their dorsal confluence largely interrupted by a perpendicular ridge; interscrobal prominence with dorsal margin rounded; toruli close to mouth, their interval greater than width of frontovertex; in profile, head subtriangular, the slightly convex planes of frontovertex and face at a little more than a right angle to each other; greatest length of eye about twice malar space; mandible diminutive, about as long (seen through the derm in anterior view in cleared specimens) as a torulus, the apex subacute in this view, irregularly rounded, edentate, widely separated in ventral aspect from the apex of the other mandible; maxillary palpi each four-segmented, labial three-segmented; antenna (fig. 1) with 11 segments, the club three-segmented, its apical segment obliquely truncate on ventral or inner ventral surface. Sculpture of head: frontovertex punctate-reticulate, each punctation giving rise to a seta; reticulations small, fine, not as raised as on scutellum.

Thorax short and broad, slightly elevated dorsally, without parapsidal sulci; axillae almost meeting medially; scutellum without a tuft of bristles (cf. Risbec 1958: 30) but with about 50 scattered setae of which about three-fourths are in the anterior one-half of the sclerite; metanotum obscured medially by apex of scutellum; propodeum with numerous setae anterior and lateral to each spiracle. Mesonotum cellulate-reticulate, the sculpture of scutellum distinctly more raised than on mesoscutum and axillae; all the latter sclerites about as densely setose as anterior part of scutellum.

Legs not especially modified, the middle tibial spur strong but distinctly shorter than adjoining tarsal segment.

Fore wing hyaline; submarginal vein slender, marginal (fig. 4) punctiform, postmarginal lacking distinct outline, less than one-half as long as stigmal; basal triangle of wing setose, the setae sparse in basal one-half and in a small area beneath apex of submarginal vein; caudal wing margin broadly bare of setae beneath basal triangle; speculum uninterrupted from near stigmal vein to bare caudal margin of wing; disc of wing densely setose; longest fringe cilia shorter and more slender than discal setae in basal triangle; hind wing setose except for basal one-fourth which is bare.

Gaster heart-shaped, a little shorter than thorax in cleared slide mounts, the apex bluntly pointed; outer plates of ovipositor shortly upturned caudally; cercal plates

rather strongly advanced to at least the level of the basal one-third of gaster; terga VII, VIII and X strongly crescentic in dorsal view, IV–VI less strongly so; ovipositor and gonostyli shortly exserted caudally, the latter for about one-half their length; ovipositor, as seen through the derm in cleared specimens, shorter than gaster, about as long as middle tibia, and about five times as long as gonostyli; the latter about two-thirds as long as middle tibial spur.

MALE. Little different from female, aside from sex characters; frontovertex distinctly wider relative to head width (about 3: 10), and ocelli in a very slightly less acute-angled triangle, than in female; frontovertex anteriorly (figs 5, 6) terminating in a V-shaped ridge, the apex bluntly pointed, overlying upper union of scrobes; the latter as in fig. 5; punctate-reticulate sculpture of face interrupted laterally near dorsal part of scrobes (fig. 5), these areas smooth or finely rugulose with an oblique row of 4–5 rather strong setae, and beneath the latter, a loose group of about 10 smaller setae; toruli higher on face and wider apart than in female; antenna (fig. 2) with ten segments, the club two-segmented (not as described and figured by Risbec 1958: 22); apical club segment slightly oblique, not much more so on one side than on the other; genitalia small, each digitus with a single stout hooklet.

Bregmencyrtus durantae (Risbec) **comb. nov.,** figs 1–6

Eucomys durantae Risbec, 1958: 19–22.
Encyrtus durantae (Risbec): Annecke & Insley, 1971: 12, 38.

Risbec's (1958) description is accurate as to colour and other characters not corrected or amplified in the foregoing generic description, and need not be repeated.

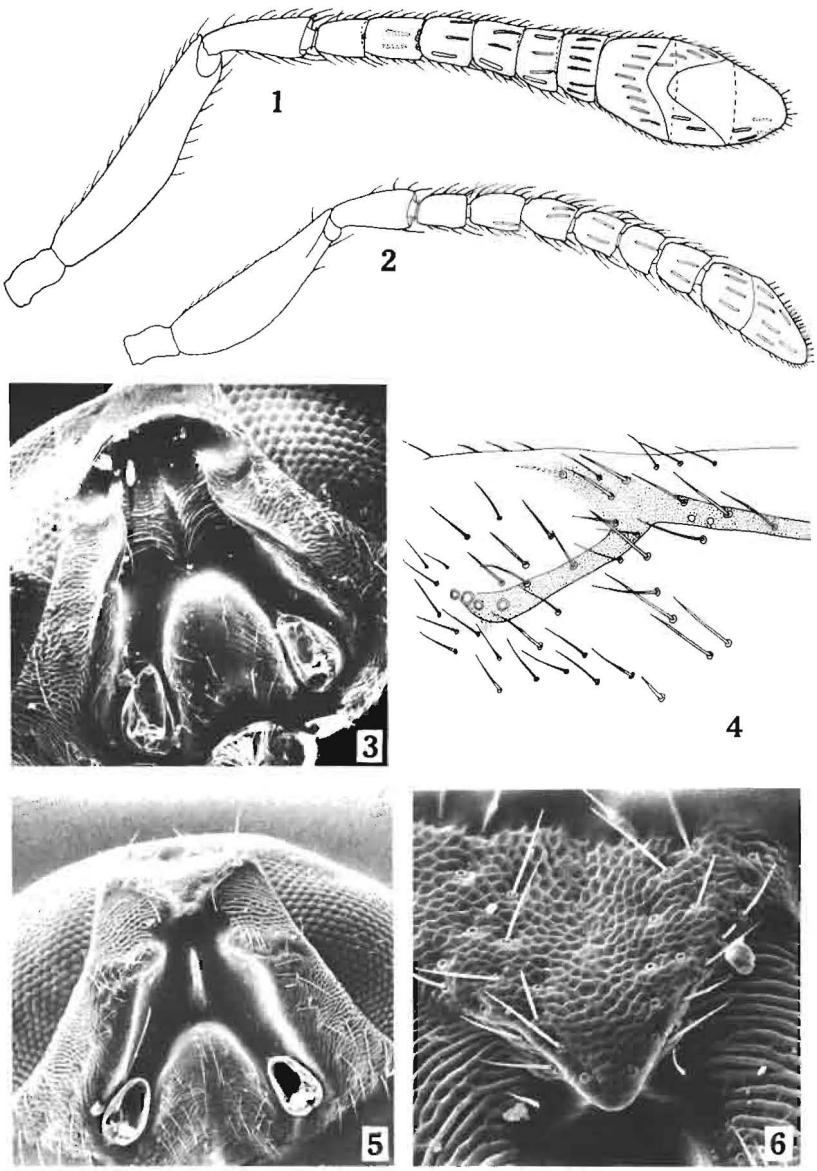
Length about 1,6 mm.

FEMALE. Antenna as in fig. 1; scape a little swollen in basal one-half; pedicel slender, about three times as long as width at apex; funicle segments only slightly separated, I–III longer than wide, IV subquadrate, V–VI wider than long; I without, II–VI with rhinaria; club subequal to or slightly longer than the preceding four segments together, with septa transverse except in one aspect (ventral or inner ventral); all club segments with rhinaria, the obliquely truncate part of apical segment devoid of them but with numerous sense cones.

MALE. Antenna (fig. 2) with scape distinctly more swollen than in female; pedicel about twice as long as wide at apex; funicle segments more separated than in female, I–IV longer than wide, V–VI subquadrate; club about as long as the three preceding segments together; funicle segments II–VI and both club segments with rhinaria.

MATERIAL EXAMINED. Risbec's type series of *Eucomys durantae*, 60♀ 5♂ (not 65♀ 1♂), now remounted: ♀-lectotype, 2♀ 2♂ on card-points, 3♀ 2♂ on slides, and the remainder dried in capsules (T 4762). The material was received on loan on a single air-cavity slide from ORSTOM (Office de la Recherche et Technique Outre Mer), Bondy, France, and will be returned there except for 2♀ 1♂ retained in the National Collection of Insects, Plant Protection Research Institute, Pretoria.

According to Risbec (1958) and the original slide labels that give similar but less complete data, the type-series was collected at Tsimbazaza, Madagascar, 19. XII. 1951, by Renaud Paulian, as parasites of the eggs of a spider on the foliage of *Duranta repens* L. (= *plumieri* Jacq.).



Figs 1–6. *Bregmencyrtus durantae* (Risbec), type-series. 1. Right antenna, outer aspect (♀T 4762–1). 2. Right antenna, outer aspect (♂T 4762–2). 3. Female head, anterior aspect, showing scrobes. 4. Apex of fore wing venation (♀T 4762–1). 5. Male head, anterior aspect, showing scrobes and anterior part of frontovertex. 6. The same, tilted, to show anterior extremity of frontovertex. (Figs 3, 5, 6 — scanning electron micrographs.)

LOMBITSIKALA Risbec

Lombitsikala Risbec, 1957: 241; Annecke & Insley, 1971: 16, 38. Type-species *Lombitsikala coccidivora* Risbec, 1957.

Part of the type-series has been remounted and re-examined in detail. It is clear that the monotypic *Lombitsikala* is closely related to *Discodes* Foerster and *Trichomasthus* Thomson — or, more precisely, to the Ethiopian species rather than the Holarctic ones, of the latter genus. Comparison with a number of species of these two genera has raised the question (see also Graham, 1969: 267) of whether the African species assigned to *Trichomasthus* are in fact congeneric with those from Europe and the America's, a matter that will receive attention elsewhere.

Lombitsikala may be distinguished from *Discodes* by a combination of characters given below of which the pale-banded fore wing, the shape of the apex of the mandible, and the extremely strong ovipositor appear to be the most striking. From African *Trichomasthus*, the shape of the scrobes distinguishes *L. coccidivora*.

Lombitsikala coccidivora Risbec, figs 8–11

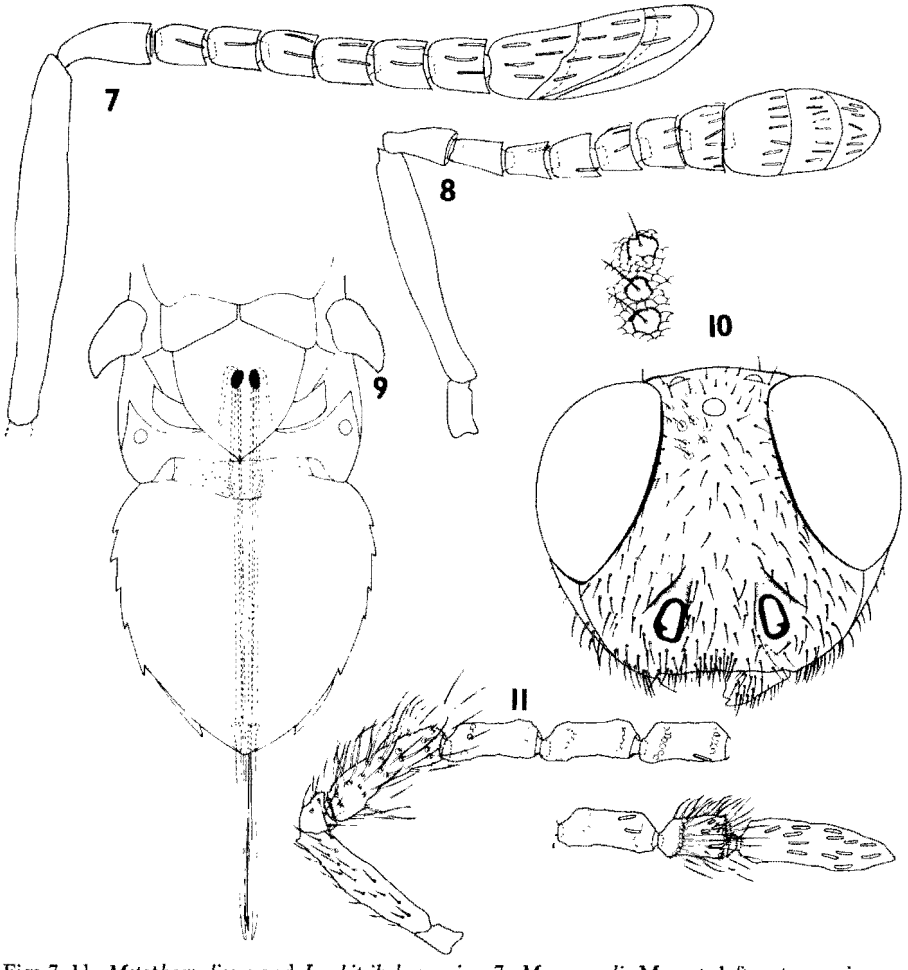
Lombitsikala coccidivora Risbec, 1957: 241–4.

This species was described from specimens collected as parasites of *Gascardia madagascariensis* Targioni-Tozzetti at Fort Dauphine, Madagascar. Some of the type-specimens have been remounted, including 2♀ 2♂ on slides after clearing in caustic soda, and it is now possible to study all the characters. A female lectotype has been designated.

Female. Fronto-occipital margin acute; antennal scrobes (fig. 10) short, hardly longer than toruli, only the dorsolateral margin of each acute, showing as a short oblique ridge dorsal to the toruli; the latter placed well below lower level of eyes, separated from each other and from eyes by about the same distance, removed from the mouth by about their own length; antenna (fig. 8) eleven-segmented, with slender scape and funicle segments as figured, II–VI each with rhinaria; mandible (fig. 10) with an acute ventral tooth and a broad, slightly retuse, dorsal truncation; head (fig. 10) with dense, coarse setation especially towards mouth, and with abundant pits each interrupting the cellulate-reticulate sculpture and each giving rise to a seta; thorax moderately humped, the mesoscutum without a trace of parapsidal sulci; axillae and scutellum in the same plane, the latter not vaulted, with an anterior longitudinal median groove that is about one-third length of scutellum or slightly more; mesonotum punctate-reticulate; basal triangle of fore wing densely setose, the setae coarse, and the wing uniformly darkly infuscated from base to well beyond level of venation; the infuscation bounded distally by a curved whitish crossband with fine and small discal setae; apex of wing normally setose, hyaline; ovipositor (fig. 9) very strongly developed, longer as seen through the derm in cleared specimens than thorax and gaster together (about 13: 10), reaching anteriorly into the thorax to a point approximately beneath mesal union of axillae, and strongly exserted at apex of gaster; gonostyli very long, exserted for almost their entire length, more than one-third overall length of ovipositor (about 5: 13) approximately as long as middle tibia; ovipositor about 2,7 times as long as middle tibia.

Male. Pits on head about one-half the size of those on female; toruli placed on an imaginary line connecting lower margins of eyes, the interval between torulus and mouth greater than that between torulus and eye; the latter interval about equal to

intertorular interval; scrobes broad, rather strongly impressed as an approximate semicircle on face, confluent dorsally, their lateral and mesal edges rounded on to face; antenna (fig. 11) nine-segmented, with scape slender, funicle segment I with several, remaining funicle segments each with two whorls of long setae; thorax much as in female, with a similar but less conspicuous scutellar groove; fore wing hyaline with slender pale discal setae, the basal triangle with a large area devoid of setae.



Figs 7–11. *Metaphaenodiscus* and *Lombitsikala* species. 7. *M. nemoralis* Mercet, left antenna, inner aspect (♀T 4820–1). 8–11. *L. coccidivora* Risbec, type-series. 8. Right antenna, outer aspect (♀T 4760–1). 9. Part of thorax, and gaster showing ovipositor (♀T 4760–1). 10. Head, anterior aspect, with sculpture enlarged (♀T 4760–3). 11. Right antenna, outer aspect (♂T 4760–2).

MATERIAL EXAMINED. 13♀ 5♂ from the type-series, the collection data corresponding with that given by Risbec (1957: 246). One female on a card-point is now designated the lectotype and will be returned to the ORSTOM collection, Bondy, France, together with the remainder of the material (except 2♀ 2♂ retained in the National Collection of Insects, Plant Protection Research Institute, Pretoria).

NEOCOCCIDENCYRTUS Compere

Neococcidencyrtus Compere, 1928: 209–12; Nikolskaya, 1952: 381–2; De Santis, 1964: 231–2. Type-species *Neococcidencyrtus alula* Compere, 1928 [= *N. poutiersi* (Mercet, 1922)].

Xenocomys Blanchard, 1940: 106, 121–3; De Santis, 1964: 33, 46, 187–8. Type-species *Xenocomys chrysomphali* Blanchard, 1940. **Syn. nov.**

Recently my colleague, Dr V. A. Trjapitzin (in litt. 12 June 1973) suggested on the basis of the published descriptions that *Xenocomys* may prove to be a junior subjective synonym of *Neococcidencyrtus*. Dr Luis De Santis kindly sent syntype material of Blanchard's type-species to me for study and this was compared with a paratype of *N. alula* (= *poutiersi*). Taking into account the interspecific differences displayed by the other species of the genus included in the key below, there do not appear to be good grounds for maintaining *Xenocomys* as a genus distinct from *Neococcidencyrtus*. The appropriate synonymy is accordingly introduced above.

Neococcidencyrtus pudaspidis (Annecke) **comb. nov.**

Microterys pudaspidis Annecke, 1963: 170–2, 174; Annecke & Insley, 1971: 19.

The diaspidine host of *pudaspidis* (*vide* Annecke, 1963) as well as certain morphological characters including shape of mandible and head, wing venation and general habitus show this species to be misplaced in *Microterys*. Shortly after I recognized it as a macropterous species of *Neococcidencyrtus*, Dr V. A. Trjapitzin (*loc. cit.*) wrote that after studying paratype material he had come to the same conclusion.

N. pudaspidis may be distinguished from the other species of the genus according to the accompanying key.

MATERIAL EXAMINED. The type-series of *M. pudaspidis*.

Neococcidencyrtus crouzelae De Santis

Neococcidencyrtus crouzelae De Santis, 1964: 233–5.

This species was adequately described by De Santis (1964). Recently collected material listed below was kindly determined by Dr Luis De Santis as conspecific with the type-series of *crouzelae* although the fore wing does not show, or hardly shows, the maculation illustrated for the types. On this point De Santis (*in litt.* 26 October 1973) comments that the La Plata paratypes of *crouzelae* have the infuscation rather faint, somewhat as in the new material, and that this variation appears to be infraspecific.

MATERIAL EXAMINED. ARGENTINA: El Quebrachal, Prov. Salta, 14. xii. 1971, H. Zimmermann, ex *Diplacaspis echinocacti* on *Harrisia* sp. (Cactaceae) (T 4223 4♀ 21♂).

Key to the species of *Neococcidencyrtus* Compere

Females

1 Brachypterous; legs with only hind tibia boldly marked with dark brown to blackish; (Europe, North America, South Africa) . . . . . **poutiersi**
— Macropterous; legs with middle and hind tibia marked or banded with dark brown. . 2
2 Fore wing slightly infuscated from about halfway along submarginal vein to apex, usually somewhat darker across the disc beneath distal one-half of venation; hind tibia largely black, only the ends whitish; (Argentina). . . . . **crouzelae**
— Fore wing more intensely infuscated, with an obvious hyaline crossband venation that contrasts with infuscated areas on either side of it; hind tibia largely pale with two contrasting brown bands 3
3 Face with two narrow, contrasting, dark brown bands, one across toruli, the other just below lower level of eyes; mandible with a strong acute ventral tooth and a retuse dorsal truncation that may in certain positions appear as two blunt, shallowly separated teeth; marginal vein four or more times as long as wide; (Argentina) . . . . **chrysomphali**
— Face without transverse brown bands; mandible with an acute ventral tooth and a broad, straight dorsal truncation, the lower angle of which is shortly produced as a tooth; marginal vein about as long as wide; (South Africa) . . . . . **pudaspidis**

Monstranusia mirabilissima Trjapitzin

Monstranusia mirabilissima Trjapitzin, 1964: 243–6; 1971b: 119.

This distinctive species was described from Moldavia, U.S.S.R. and later recorded (Trjapitzin, 1971b) from northern Afghanistan. Two females from Afghanistan were received from Dr V. A. Trjapitzin in an exchange of specimens and were compared with the two South African specimens recorded below. The two lots agree in every detail of structure and colour except that the Afghanistan material has the brown parts of the body somewhat paler, presumably a consequence of several years of storage in alcohol. The colour differences are not regarded as important.

The present record of *M. mirabilissima* from South Africa vastly extends the known range of the species. Unfortunately host insects — very likely pseudococcids — are not known.

Material Examined. SOUTH AFRICA: Cape Peninsula, xii. 1973, A. Watsham, sweeping (1♀); Zebediela, Tvl., 18, vi. 1966, H. Baas, suction trap (1♀ T 2287).

METAPHAENODISCUS Mercet

Metaphaenodiscus Mercet, 1921: 626–7; Nikolskaya, 1952: 333, 449; Kerrich, 1967: 188, 190. Type-species *Metaphaenodiscus nemoralis* Mercet, 1921.

This interesting tetracnemine genus is known from the European type-species, *M. nemoralis* Mercet, and from a second species, *M. bactrianus* Trjapitzin, described recently (Trjapitzin, 1972) from northern Afghanistan. Kerrich (1967) briefly characterized but did not name two other species, each represented by a single specimen, one from South Africa and the other from Queensland, Australia. Recent acquisitions of several series of specimens, including two females from Spain of the type-species, permit the validation of Kerrich's unnamed South African species, and the description of three others from southern Africa.

Unfortunately, hosts are not known for any of the new species except for one series said to have been reared in 1940 from a "*Pseudococcus*", a name used at that time somewhat as a catch-all for undetermined South African mealybugs.

In the type-species as well as in all the new species, it has been possible to confirm, in cleared slide-mounted specimens, the presence of slender paratergites the apical parts of which curve downward and then forward to connect ventrally with the outer plate of the ovipositor on each side.

A further feature noticed in the five species dealt with here, including the type-species, is extraordinary among the Encyrtidae: the antennal club is four-segmented (figs 7, 13–15, 18) and not three-segmented (*vide* Mercet, 1921). The apical segment can be seen only in cleared slide-mounted material: it is disc-like, extremely oblique, and the suture separating it from the third segment can usually not be followed entirely for it disappears around the side of the club, to reappear elsewhere where the surface again curves towards the horizontal.

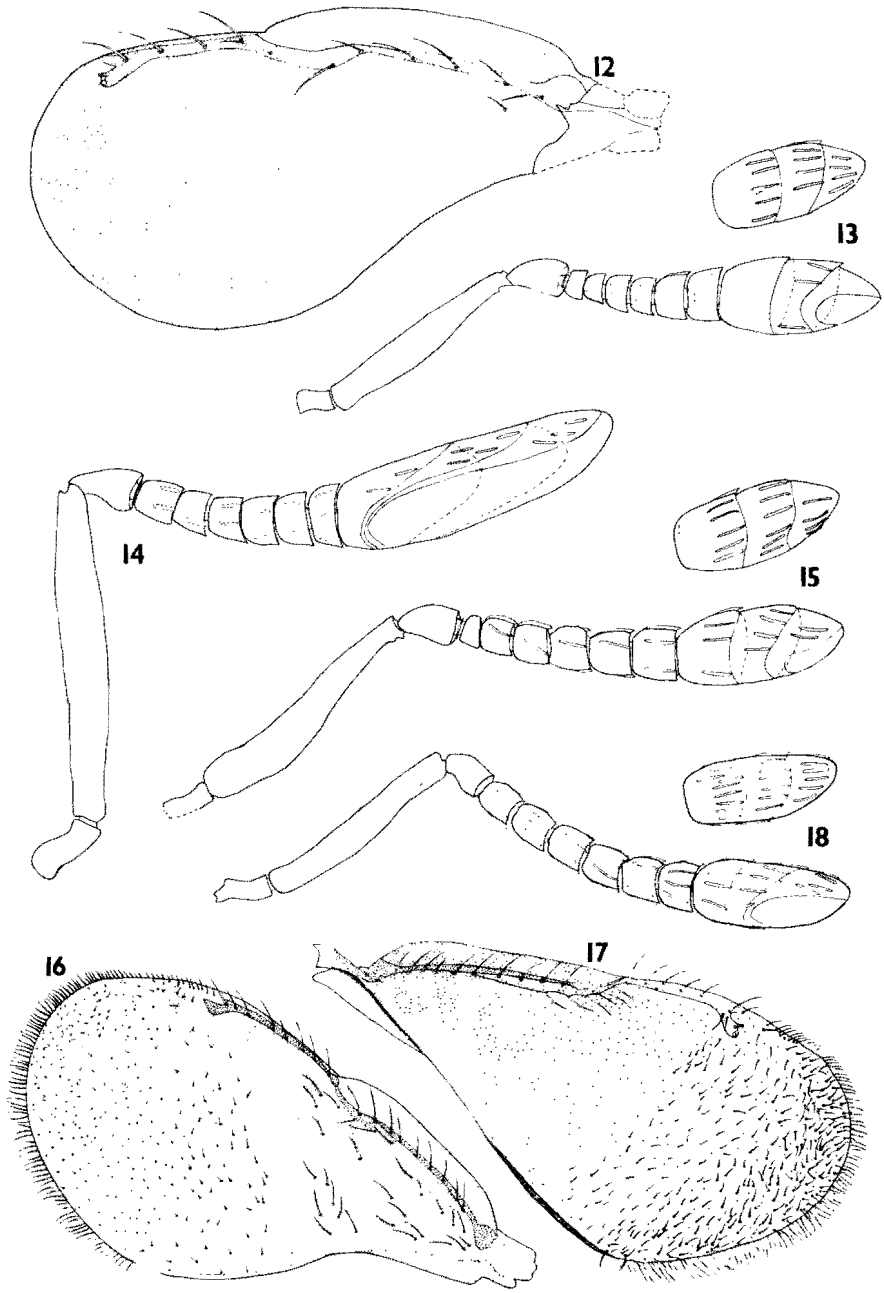
Metaphaenodiscus capensis spec. nov., figs 12, 13

FEMALE. Colour (somewhat bleached after 33 years' storage in alcohol) dark brown, largely non-metallic, shiny; pits on head reflecting metallic greenish colours; antenna brownish white, only the radicle, and pedicel largely, dark brown; legs dark brown, knees, apex of middle tibia, and all tarsi fading to brownish white; fore wing entirely infuscated, rather dark brown in colour; hind wing hyaline, only the venation brown.

Length about 1,2 mm.

Head in dorsal view (occiput perpendicular) wider than thorax, very short anteroposteriorly, strongly curved to follow curvature of prothorax, the acute fronto-occipital margin more strongly curved than facial margin; frontovertex narrowest across median ocellus, slightly less than one-half greatest head width (about 7: 16); ocelli in a very obtuse-angled triangle, the lateral pair about twice their diameter from orbits, a little more from fronto-occipital margin; malar space less than one-half dorsoventral diameter of eye; face (seen anteriorly with a broad, slightly raised ledge forming an inverted, wide-angled V-shaped figure above scrobes, the upper median limit lying a little above lower level of eyes; scrobes present as short, broad, subtriangular impressions, scarcely longer than greatest torular diameter, separated by the raised interscrobal prominence, not confluent dorsally; toruli less than one-half their length from mouth margin; mandible with an acute ventral tooth and an upper truncation that is shallowly retuse giving the mandible a tridentate effect; antenna (fig. 13) with scape long and slender, tapering apically; pedicel about as long as the following three segments together; all funicle segments wider than long, the segments increasing in size from first or second to last; club wider than funicle VI, the first two segments separated by increasingly oblique sutures, the fourth showing only on inner ventral surface of club; funicle segments III–VI and the three basal club segments with rhinaria; flagellum shortly and finely setose. Surface of head between pits finely cellulate-reticulate, the sculpture little raised; pits smooth, without sculpture, each giving rise to a seta, each about twice the diameter of anterior ocellus.

Thorax approximately as long as broad across tegulae, gently convex dorsally, the axillae not raised; mesoscutum wider than long, without a trace of parapsidal sulci; axillae, in specimens of which the thorax is not flexed at the scutoscutellar suture, less



broadly separated on the meson than is the case in the type-species; scutellum slightly wider than long, hardly convex, the apex broadly rounded with a short, blunt, projecting tip overlaying cephalic margin of propodeum; mesothoracic sculpture consisting of a rather uniform network of cellulate reticulations, faint on axillae, the sculptural ridges not interrupted in the large but shallow setigerous pits on mesoscutum and scutellum; propodeum coarsely cellulate-reticulate, with about 7–10 slender setae laterally, and with coarse and irregular sculptural ridges medially. Legs not unusually modified, the middle tibial spur shorter than adjacent tarsal segment.

Fore wing (fig. 12) roundly truncate beyond venation, about as long as median length of thorax, less than twice as long as greatest width (about 7: 4) venation as in fig. 12; discal setae absent on dorsal surface, present on ventral surface in apical one-half or so of wing, becoming denser towards apex, most of the setae directed forward towards venation; marginal fringe lacking; hind wing less than two-thirds length of fore wing, not extending beyond hooklets.

Gaster shorter than thorax in dried specimens, with ploughshare-shaped apical sternite reaching beyond apex of gaster; cercal plates not strongly advanced, placed approximately at the level of middle of gaster in relaxed slide-mounts; ovipositor upcurved, about as long as middle tibia.

MATERIAL EXAMINED. ♀-Holotype and 18♀-paratypes (T 3179) with the following data:— SOUTH AFRICA: Elgin C.P., iv. 1940, C. J. Joubert, ex *Pseudococcus*. A second series is determined as conspecific but not designated as paratypes:— SOUTH AFRICA: George Distr., viii. 1965, D. J. Rust, ex mealybug on *Protea aurea* (Burm. f.) Rycroft (3♀ T 2016).

Metaphaenodiscus watshami spec. nov., fig. 14

This is the species briefly described, but not named, by Kerrich (1967: 190).

FEMALE. Colour black with refringent colours in the pits on the head and more weakly on mesonotum; antenna pale brown to brownish-white, only the radicle, and pedicel largely, brownish black; legs concolorous with only the apices of femore and tibiae, and all tarsi, brownish; fore wing infuscated beneath submarginal vein, subhyaline from about the level of base of marginal vein to wing apex; hind wing hyaline.

Length about 1,4 mm.

Head similar to that of the type-species, with frontovertex at narrowest about one-half head width; antennae arising close to mouth beneath a transverse ledge that is emarginate to accommodate each torulus; mandible tridentate, rather narrow at apex, the two blunt upper teeth close together and not deeply separated; antenna (fig. 14) with scape long and slender, longer than club; pedicel very nearly as long as the two following

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LEGEND TO FIGURE

Figs 12–18. *Metaphaenodiscus* species, ♀-paratypes. 12–13. *M. capensis* spec. nov. (T 3179–1). 12. Left fore wing. 13. Left antenna, inner aspect, with outer aspect of club shown separately. 14. *M. watshami* spec. nov., left antenna, inner aspect (T 4821–1). 15–16. *M. karoo* spec. nov. (T 4814). 15. Left antenna, inner aspect, with outer aspect of club shown separately. 16. Left fore wing. 17–18. *M. aethiops* spec. nov. (T 4822–1). 17. Right fore wing. 18. Left antenna, inner aspect, with outer aspect of club shown separately.

segments together; funicle short, segment I longer than wide, II subquadrate, III–VI all wider than long; club very long, a little longer than funicle and pedicel together, the segments extremely oblique; the first about one-half length of club on outer surface, not as long as funicle VI on inner surface; remaining segments equally oblique or more so; segment IV almost as long as club; all funicle and the three basal club segments with rhinaria and with numerous short slender setae. Pits on head a trifle shallower and smaller than those in the type-species, most of them somewhat larger than median ocellus, their surface smooth, without sculpture; head between pits very finely and faintly cellulatereticulate.

Thorax very like that of the type-species, the axillae fully as widely separated on the meson as in that species; propodeum very steeply declivous and pits on mesonotum as in the type-species but the pits not quite so dense, many being separated by fully the diameter of a pit; cellulate-reticulate sculpture of surface interrupted by the pits of which the surface is smooth.

Legs like those of the type-species, the middle tibial spur shorter than adjoining tarsal segment.

Fore wing well developed, like that of the type-species except the blade more sparsely and much more finely setose; hind wing of quite different shape from that of the type-species being broadest based of the middle, the apical one-half or so of the wing becoming narrower.

Gaster similar to that of the type-species, the cercal plates similarly advanced to about the level of the basal one-third of the length of gaster; ovipositor and middle tibia subequal in length.

MATERIAL EXAMINED. ♀-Holotype and 8♀-paratypes with data as follows:—RHODESIA: Salisbury, ii–iii. 1971, A. Watsham, sweeping (♀-holotype, 7♀-paratypes, T 4821); the same but dated only 1969 (1♀-paratype, T 3537); the specimen from Pretoria, Transvaal, referred to by Kerrich (1967: 190) is excluded from the type-series; it is clearly conspecific.

M. watshami is named for Rev. Anthony Watsham, St Ignatius College, Salisbury, Rhodesia, who collected the type-series as well as much of the other *Metaphaenodiscus* material reported on in this paper.

Metaphaenodiscus karoo spec. nov., figs 15-16

This species resembles *capensis* more than it does the type-species. It is described with reference to *capensis*.

FEMALE. Entirely black save tarsi, with somewhat weak metallic bluish refringence on head including antennal scape, thorax and gaster; apex of scape fading to brownish; tarsi with basal segment of each whitish, becoming brown more or less widely at apex, remaining tarsal segments brown; fore wings entirely infuscated, dark brown, the colour becoming gradually distinctly paler towards apex; hind wing narrowly dark brown above and beneath basal one-half of venation.

Length about 1,3 mm.

Head very like that of *capensis*, the frontovertex slightly less than one-half head width, and the face above scrobes with a similar, wide-angled, inverted V-shaped ledge; mandible bidentate, the upper tooth a little broader and more rounded at apex than lower one; antenna (fig. 15) with scape slender, tapering beyond the middle; funicle with segment I less than one-half as long as pedicel, abruptly smaller than the following

segments, much wider than long, each without rhinaria; II–VI each slightly wider than long, increasingly so, with rhinaria; club considerably broader than funicle, about as long as the last four funicle segments together, the segments oblique but not strongly so, the fourth segment an indistinct disc on inner ventral surface of third segment, the first three segments with rhinaria. Sculpture and facial pits much as in *capensis*, those ventral to anterior ocellus tending to be of slightly larger size.

Thorax similar to that of *capensis*, the surface of mesonotum very roughly punctate-reticulate rather than pitted, the cellulate sculpture plainly resolvable at 100X magnification, not interrupted in the large punctations.

Legs much as in *capensis*; middle tibial spur a little more than one-half as long as adjoining tarsal segment.

Fore wing (fig. 16) fully developed, quite as long as thorax and gaster in dried specimens; basal triangle with a few coarse, long discal setae arranged in three irregular rows, one beneath submarginal vein, another along edge of speculum, and the third lying obliquely between these two; discal setae beyond speculum sparse, rather long and very slender, becoming shorter and more dense towards apex of wing; hind wing with the shape of that of the type-species, being broadest at about the middle.

Gaster shorter than thorax; cercal plates advanced to the level of about the middle of gaster in the cleared slide-mounted specimen; ovipositor slightly longer than middle tibia (about 6: 5), the tip reaching apex of gaster.

MATERIAL EXAMINED. ♀-Holotype and 2♀-paratypes:— SOUTH AFRICA: Pearston C.P., 18. xii. 1973. A. Watsham, sweeping (♀-holotype, T 4815); Willowmore C.P. 16. xii. 1973, A. Watsham, sweeping (2♀-paratypes, T 4814).

Metaphaenodiscus aethiops spec. nov. figs 17–18

FEMALE. Black with rather weak bluish and purplish refringence; antennal scape and pedicel brown, radicle and flagellum brownish black; legs black, the apical one-fourth of middle and hind tibia fading to brown, and all tarsi brownish white; fore wing infuscated beneath submarginal vein, the colour gradually fading, subhyaline in distal one-third or more of wing; hind wing hyaline.

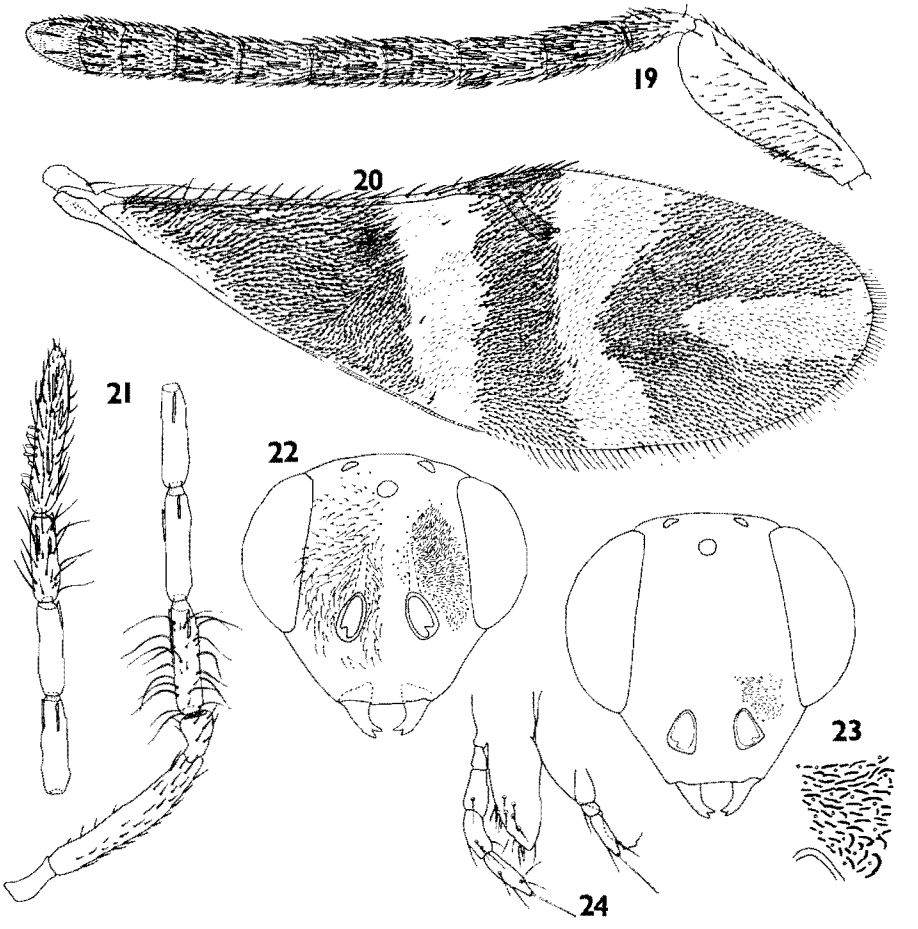
Length about 1,4 mm.

Head similar to that of *capensis*; frontovertex at narrowest about one-half head width; suprascrobal ledge rather like that of *capensis* but placed distinctly higher on face; toruli removed from mouth margin by a trifle more than their own length, their upper margins approximately level with lower limits of eyes; mandible with an acute ventral tooth and a rather broad, retuse upper truncation, giving a tridentate effect; antenna (fig. 18) with scape slender, not swollen basally; pedicel about as long as or a little shorter than funicle segment I; all funicle segments subequal in length, becoming gradually wider from first to last, VI and sometimes V a little wider than long, the remainder longer than wide, all with rhinaria; club approximately as long as the preceding four segments together, or a little shorter, the segments somewhat oblique, I–III with rhinaria, IV more than one-half as long as club, placed as a disc on III, without rhinaria. Pits on head dense, not very deep, many not or little larger than median ocellus, interrupting the weak surface sculpture of cellulate reticulations.

Thorax much like that of *capensis* in structure and sculpture; axillae a little separated on meson in unflexed specimens; cellulate-reticulate sculpture interrupted in the pits of which the surface is smooth.

Legs not unusally modified, the middle tibial spur about three-fourths length of adjoining tarsal segment.

Fore wing (fig. 17) fully developed, devoid of dorsal discal setae in basal triangle but with a few ventral setae beneath submarginal and others beneath marginal vein; disc in about distal one-half with sparse, very slender discal setae that become more dense towards apex of wing; marginal fringe present; hind wing shaped somewhat as in *M. watshami*, broadest basal to middle and narrowing towards apex, the disc sparsely and very finely setose.



Figs 19–24. *Gyranusa rubella* spec. nov., paratypes. 19. Left antenna, outer aspect (♀T 3298–1). 20. Right fore wing (♀T 3298–1). 21. Left antenna, outer aspect (♂T 3298–2). 22. Head, anterior aspect (♂T 3298–2). 23. Head, anterior aspect, with sculpture enlarged separately (♀T 3298–1). 24. Maxillary and labial palpi (♂T 3298–2).

Gaster about one-half length of thorax; cercal plates about halfway towards apex; ovipositor a little shorter than middle tibia.

MATERIAL EXAMINED. ♀-Holotype and 6♀-paratypes:— RHODESIA: Salisbury, ii–iii. 1971, A. Watsham, sweeping (T 4822).

Metaphaenodiscus nemoralis Mercet, fig. 7

Metaphaenodiscus nemoralis Mercet, 1921: 627–9; Nikolskaya, 1952: 450; Kerrich, 1967: 190.

This species was described from Spain and needs no detailed redescription. Attention is drawn here only to a few characters by which it may be distinguished.

FEMALE. Antenna (fig. 7) with scape slightly more slender at the ends than at the middle; pedicel a little shorter than funicle segments I and II together; funicle segments I–VI all longer than wide, subequal in length, increasing in width gradually from first to last; club somewhat wider than funicle VI, as long as III–VI together, the sutures, especially second and third, oblique; fourth club segment almost two-thirds length of club, placed on the latter's inner ventral surface, its apex forming the apex of club; all funicle segments and the three basal club segments with rhinaria; mandible bidentate, the upper tooth rather broadly rounded apically; transverse facial ledge present, deeply emarginate above each torulus as an indentation that forms the short scrobe; facial pits dense, interrupting the hardly discernible cellulate sculpture of surface of head, those in vicinity of median ocellus of slightly smaller diameter than ocellus; inner angles of axillae separated by almost one-half width of scutellum; fore wing with numerous rather dense setae in basal triangle, and numerous finer discal setae beyond speculum; the latter broad, separated by discal setae from both venation and caudal margin of wing; hind wing of normal shape, broadest at about the middle; mesonotum with pits of similar size and density to those on head, but each with less well defined outline, the reticulated surface sculpture absent or hardly indicated in each pit, their surface less shiny and smooth than on head.

MATERIAL EXAMINED. SPAIN: Sra. de Espuna nr Totana, 20. vi. 1973, A. Watsham, sweeping (2♀ T 4820).

Key to the species of *Metaphaenodiscus* Mercet

FEMALES

1 Fore wing more or less densely setose in basal triangle and in the disc beyond speculum (discal setae extremely fine in *watshami*) 2
— Fore wing without or with few setae in irregular rows in basal triangle and usually with sparse and extremely fine setae in the greater part of the disc. 4
2 Funicle segments I–V longer than wide, VI quadrate or slightly longer than wide **nemoralis**
— All funicle segments, or at least II–VI, wider than long. 3
3 Funicle segment I longer than wide, remainder more or less transverse; antennal club longer than funicle and pedicel together; fore wing infuscated in about basal one-third, fading to subhyaline distally . . . . . **watshami**
— All funicle segments wider than long; antennal club about as long as funicle; fore wing uniformly infuscated. . . . . **bactrianus**
4 Brachypterous; the first two funicle segments considerably smaller than remainder, without rhinaria. . . . . **capensis**
— Macropterous; at most only the first funicle segment much smaller than remainder. . 5
5 First funicle segment much smaller than remainder, not one-half length of pedicel, without rhinaria . . . . . **karoo**
— All funicle segments rather large, the first subequal to pedicel, with rhinaria . **aethiops**

Gyranusa rubella spec. nov., figs 19–24

This species owes its generic placement to Dr G. J. Kerrich, formerly of the Commonwealth Institute of Entomology, London, who kindly examined specimens in 1970. Although the genus *Gyranusa* Mercet is now taken as a synonym of *Anagyrus* Howard, I persist here in its use. This is more to indicate the overall structural agreement of *G. rubella* with *G. matritensis* Mercet, type-species of the genus, of which one female specimen is at hand, than to suggest disagreement with the published synonymy.

G. rubella differs most notably, perhaps, from *G. matritensis* in the female in having a strongly maculate fore wing, in the shape of the scape, and in colour. In other characters enumerated by Mercet (1921) and Compere (1947) the two species are very alike.

FEMALE. Colour usually more or less reddish-orange to brownish-orange with somewhat variable blackish or dusky suffusions; head and thorax with silvery setae; antennal radicle, upper edge and apex of scape narrowly, and flagellum, usually dark brown to blackish-brown; lower edge of scape greyish to whitish; pronotum blackish, the mesoscutum sometimes marked with blackish anteriorly; remainder of thorax a shade of brownish-orange; legs with fore and middle coxae concolorous with thorax, hind coxae and remainder of legs more or less strongly suffused with brown to blackish; middle tibial spur and adjoining tarsal segment save at apex pallid whitish; fore wing with a distinctive pattern formed by three maculae (fig. 20), the dark colour produced largely by areas with coarse blackish discal setae and contrasting areas bearing pale translucent setae; integument of wing infuscated only in a small area proximad to the pale crossband and in the dark crossband beneath stigmal vein; gaster more or less concolorous with thorax but washed with dusky to blackish especially towards apex.

Length about 1,4 mm.

Head, viewed dorsally (occiput perpendicular), with anterior margin medially almost straight, only slightly convex; eyes large, slightly protuberant; fronto-occipital margin broadly concave, the angle acute; frontovertex narrowest at about posterior ocelli, slightly less than one-half head width; ocelli placed at the angle of an equilateral triangle, the lateral pair about equidistant from orbits and fronto-occipital margin; in anterior aspect (fig. 23) head higher than wide; eyes fully twice as long as malar space; upper level of toruli about at lower eye level; scrobes hardly formed, the facial setation not interrupted above toruli; face a little raised between toruli; mandible with two unequal teeth, the upper one the longer; maxillary palpi (fig. 24) with four segments, labial palpi with three; antenna (fig. 19) with radicle about three-fourths length of pedicel; scape ventrally expanded, about three times as long as greatest width; pedicel much shorter than basal funicle segment, about as long as funicle VI; I and II subequal, remainder progressively slightly shorter, VI distinctly longer than wide; club scarcely wider than funicle VI, slightly longer than funicle V and VI together, formed of three distinct segments, the first and last approximately as long as wide, the second plainly shorter; antenna densely setose, especially at base of scape ventrally; all funicle and club segments with slender rhinaria; greater part of head with sculpture (fig. 23) consisting of fine short raised ridges that are not connected to form cells except between, lateral to, and ventral to toruli; head and face rather densely setose, the setae more or less as long as an ocellar diameter.

Thorax, in dorsal view, not much longer than wide; pronotum short; mesoscutum fully twice as wide as long, without a trace of parapsidal sulci, its hind margin sinuate with a broad median salient overlying mesal union of axillae; the latter in a plane with scutellum which is weakly vaulted, its apex overlying metanotum and part of propodeum medially; mesonotum with numerous setae, those on mesoscutum a little flattened and those on scutellum slender, and with fine, reticulated sculpture consisting of fully or almost closed cells of highly irregular shape and size; propodeum dorsolaterally and laterally with similar sculpture and with scattered setae.

Legs long and slender, the middle tibial spur strong and slightly longer than adjoining tarsal segment which is almost as long as the three following segments together.

Fore wing (fig. 20) with costal cell becoming narrower in proximal one-half, barely discernible along anterior edge of submarginal vein in distal one-half; submarginal without a triangular expansion; marginal slightly shorter than postmarginal and the latter a trifle shorter than stigmal; entire wing densely setose save the short speculum, the contrasting short and fine setae mainly responsible for the wing maculation shown in fig. 20; hind wing hyaline, with very fine, pale discal setae.

Gaster about or almost as long as thorax in dried specimens; cercal plates strongly advanced to about the basal one-fifth of length of gaster; paratergites present as long, very slender plates apparently fused or partly so on outer margin with tergum VIII; spiracle on the latter visible in dorsal view (slide-mounted material); ovipositor as seen through the derm short, somewhat over one-half length of middle tibia (about 10: 17), not extruded at apex of gaster.

MALE. Colour much as in female but often more liberally marked with black especially on lower parts of head, mesoscutum medially, axillae and gaster. Head with frontovertex about one-half head width; toruli (fig. 22) set distinctly higher on face than in female, the scrobes lightly impressed, each showing a narrow interruption in the facial setation; antenna as in fig. 21, the scape slender, cylindrical; club with a longitudinal row of clavate setae in about basal one-half of its length; fore wing hyaline except narrowly near marginal, stigmal and postmarginal veins; basal part of wing save speculum which is as in female, densely setose, the setae fine and translucent except in a broad band beneath proximal two-thirds of submarginal vein where the setae are coarse; from level of base of stigmal vein to wing apex the blade is coarsely setose with only a small apical area, approximately corresponding to the female's wing apex (fig. 20), having fine translucent setae. In other respects, aside from genitalia, the male resembles the female.

MATERIAL EXAMINED. ♀-Holotype, 13♀ and 37♂-paratypes:— SOUTH AFRICA: Edenville O.F.S., i. 1970, H.P. Insley, ex *Oxyacanthus* sp. (Homoptera: Pseudococcidae) on *Felicia muricata* (Thunberg) Nees (T 3298). Additonal material not included in the type-series:— SOUTH AFRICA: Albertinia C.P., iii. 1970, H.P. Insley, ex *Oxyacanthus chrysocomae* (Brain) on *Chrysocoma tenuifolia* Berg. (T 3357, 5♀ 3♂).

ACKNOWLEDGEMENTS

I am grateful to the Head and staff of the department of Zoology, University of Potchefstroom for C.H.E., Potchefstroom, for the photographs taken on their scanning electron microscope; to Dr Luis De Santis, Facultad de Ciencias y Museo, Universidad Nacional de la Plata, La Plata, Argentina, and Dr R. M. Quentin, Office de la Recherche

Scientifique et Technique Outre Mer, Bondy, France, for the loan and gift of specimens; to Dr V. A. Trjapitzin, Zoological Institute, Academy of Sciences, Leningrad, U.S.S.R., for his comments on *Neococcidencyrtus*; to the Rev. Anthony Watsham, St Ignatius College, Salisbury, Rhodesia, for the gift of valuable material from Europe and southern Africa; and to my assistants, the Misses S. Parker and P. Steyn and Mr G. L. Prinsloo for help in mounting and drawings of specimens studied.

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Manuscript received 20 June 1974.